

Thesis Title Use of Some Fruit Skin Extract to Control
 Mango Anthracnose

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ABSTRACT

The fungistatic- activity of 33 crude extracts at 5000 ppm obtained from fruit skin of 14 plant species employing three methods of extractions; mechanical, hydro-distillation and solvent extraction using n-hexane, dichloromethane and methanol or ethanol, was screened by poison food technique as pre-test against *Colletotrichum gloeosporioides* causing mango anthracnose. Among those plants, cashew nut shell, orange and mangosteen peel showed the best result in pathogen growth inhibition and hence were selected for further investigation. ED₅₀ of eleven crude extracts of the 3 plants were determined and the inhibition of mycelium growth and spore germination at 5 different level concentrations of 2500, 5000, 10000, 20000 and 30000 ppm were retested. It was found that crude extracts of cashew nut shell obtained by n-hexane was most toxic to the pathogen with ED₅₀ of 254.35 ppm followed by crude of cashew nut shell, orange peel extracted by dichloromethane and essential oil from orange peel with ED₅₀ of 348.12, 391.13 and 583.24 ppm respectively while ED₅₀ of commercial fungicide

of benomyl was less than 10 ppm. The study on pathogen inhibition in both radial growth and spore germination found 5 extracts which were essential oil of orange peel, orange peel extracted by dichloromethane, cashew nut shell extracted by n-hexane, crude cashew nut shell and mangosteen extracted by dichloromethane to be most effective against *C. gloeosporioides* and were therefore, selected for the experiment on the control of anthracnose of mango fruit. Two-day-inoculated mango fruits (Nam Dok Mai variety) of *C. gloeosporioides* was individually soaked in each 5 crude extracts of 2500, 10000, 30000 and 50000 ppm compared with 500 ppm benomyl in anthracnose controlling, and the lowest disease severity was come from 50000 ppm essential oil of orange peel followed by 50000 ppm cashew nut shell extracted by n-hexane and 10000 ppm orange peel extracted by dichloromethane on the second day of incubation at room temperature. After 5 to 9 days of incubation, all inoculated mango fruits were rotten showing the disease severity of more than 75 % except those from 30000 ppm crude of cashew nut shell, 50000 ppm cashew nut shell extracted by n-hexane, 50000 ppm crude of cashew nut shell, and 50000 ppm mangosteen extracted by dichloromethane with no statistical difference in disease severity of 63.95, 72.23, 72.72 and 73.2 % respectively. These extracts were better than 500 ppm benomyl commercial fungicide, in the control of mango fruit anthracnose which showed 86.17% disease severity at 9-day-incubation. However, the extracts of cashew nut shell and essential oil of orange peel were toxic to mango fruit causing dark brown spot developed all over the skin. Therefore, it could be realized that mangosteen extract was more potential in the control of mango fruit anthracnose compared to the others in the investigation.